## ABSTRACT

The present invention provides a method and apparatus that are capable of suppressing fluctuation in shrinkage of a silica glass pipe such that an optical fiber preform which is uniform in the longitudinal direction can be produced. The method includes a step of depositing a glass layer in the silica glass pipe. In the step of depositing a glass layer in the silica glass pipe in the method, two or more in total of an exhaust portion and a buffering gas inlet portion are connected to the silica glass pipe, and at least the amount of the exhaust gas from the exhaust portion or the amount of the buffering gas introduced in the buffering gas inlet portion is feedback-controlled, and at least other one of them is pattern-controlled according to a flow rate pattern corresponding to heating positions on the silica glass pipe. The apparatus includes a gas supply system, two or more in total of an exhaust portion and a buffering gas inlet portion, a heat source, a position detecting means for detecting a heating position of the heat source on the silica glass pipe, a first control means for controlling at least the amount of the exhaust gas from the exhaust portion or the amount of the gas introduced into the buffering gas inlet portion according a flow rate pattern corresponding to heating positions, and second control means for feedback-controlling at least other one of the exhaust gas from the exhaust portion and the amount of the gas introduced into the buffering gas inlet portion.